Inside Information
TOOLS FOR THE PRESENT & FUTURE

VOLUME 7, NUMBER 4
SPRING 2001

WORLD WITHOUT WIRES

There is a lot of talk these days about the new wireless communication and wireless-enabled devices; however there's nothing new about the technology behind them. In fact, the technology has been around for over 50 years in the form of the early walkie-talkies used in World War II, wireless pagers, and wireless phones ...think Dick Tracy's wrist phone.

Wireless communication is defined as transmission of information by radio waves over a distance using a consistent protocol. Primitive examples include waving lanterns by night or sending smoke signals. Modern examples include handheld devices like pagers, smart phones, and personal digital assistants (PDAs) using wireless modems or cards to enable data communications.

The evolution of wireless technology and computer technology over the last twenty years has been extremely rapid. In more recent stages of that process, the Internet, the future of computer technology, has converged with wireless technology, a technology of the past. To better understand this occurrence, this article will highlight wireless technology by coverage area: Personal Area Networks (PANs), Wireless LAN Systems (WLAN), and Wide-Area Wireless Networks.

Personal Area Networks (PANs)

There are two very different technologies that make up Personal Area Networks (PANs): Infrared and Bluetooth.

Infrared has been in use with PCs since the release of Windows 95 as a means of communication between computer peripherals, laptops, desktops, and PDAs. Infrared technology functionality is limited to very short distances (1-1.5 meters). Only a device at very close range and without obstruction is able to send and receive data. As a result, infrared is the perfect technology for transmitting private information such as credit card or medical data. The Health Sciences Library employs infrared technology to print from PDAs and laptops and to allow Palm OS-based devices to send e-mail and retrieve web content using Avantgo (**http://www.avantgo.com**).

Bluetooth was conceived by Ericsson Mobile Communications in 1994 and is being backed by some of the biggest names in technology including 3Com, Ericsson, IBM, Intel, Lucent, Microsoft, Motorola, Nokia and Toshiba. The Bluetooth technology provides wireless connectivity of up to 8 devices operating within a very small radius of 3 meters from each device. Bluetooth's advantages are its very low power requirements and cost (target price is $5 per device). Some examples of Bluetooth usage include:

- ■ Cord replacement - Connect your keyboards, mice, modems, and cameras without cables.
- ■ Automatic synchronization - Synchronize information to and from your PDA or laptop to your desktop.
- ■ Ubiquitous Internet access - Surf the Web with your laptop by connecting to your cellular phone while it is still in your brief case.
- ■ Ad hoc collaboration - Connect up to 8 participants with Bluetooth-enabled laptops to share and transfer documents.
- ■ Smart Home - Let your home electronic devices accommodate your needs by providing communication between your lights, appliances, and environmental controls.

Bluetooth operates on a radio frequency of 2.4GHz similar to Wireless LAN and allows for a data transmission speed up to 721kbps. Some cordless phones and microwave ovens also share the 2.4GHz band and can cause commu-

Continued on page 2

Continued from page 1

nication interference with Bluetooth-enabled devices. Technologies like Wireless LAN are the better choice for corporate LANs while Bluetooth will be the better technology for connectivity between computers and small devices such as PDAs, digital cameras, and cell phones.

Wireless LAN Systems (IEEE 802.11)

A Wireless LAN (WLAN) is a standard (IEEE 802.11) of data communication that provides location-independent network access between a computer and a network using radio waves rather than cabled infrastructure. The system may consist of a wireless access point (transmitter) that is connected to a network using conventional network cabling and a wireless host adapter installed in a desktop, laptop computer, or handheld device. WLAN allows you to connect to and access any resources you would have access to if you were hardwired to a network using a patch cable. WLANs can operate at speeds up to 11Mbps.

Inside Information

Inside Information is published 4 times a year for faculty, students, and staff of the University of Virginia Health System and other interested individuals. *Inside Information* is supported by the Health Sciences Library.

University of Virginia Health System

EDITORS
Gabriel R. Rios
Mike Wilson
Andrea Horne
Bart Ragon

GRAPHIC ARTIST
Tom Bellucci

EDITORIAL ADVISORS
Sara Arneson, Gretchen Naisawald Arnold, Armando Bolmey, Stephen Borowitz, Bill Detmer, John Jackson, Bill Pearson, Janet Sakell, Steve Stearns, Linda Watson

Please direct comments, questions, or subscription requests to:
Phone: 804-924-0051
TDD: 804-982-HEAR
E-mail: inside.info@virginia.edu
Inside Information is available in electronic format:
URL: http://www.med.virginia.edu/hs-library/newsletter/

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The University of Virginia's Department of Information Technology and Communication (ITC) has begun to deploy a campus-wide wireless LAN infrastructure for the University (**http://www.itc.virginia.edu/genmgr/org/projects/01-02-projects/31-csd.htm**). Wireless LAN technology has advanced to the point that it is now feasible to deploy the technology on a campus-wide basis. Previous versions of the technology had shortcomings in security and reliability that prevented widespread adoption. The Health Sciences Library will be installing 5 wireless access points (transmitters) to provide coverage in certain areas of the library. Wireless connectivity will offer support for common applications such as messaging (email, calendar, etc), most Web browsing, occasional file transfer, and other similar services. The wireless access points do not have the capacity to support any significant volume of video service.

Wide-Area Wireless Networks

The most common wide-area wireless networks are based on cellular technology. Cellular technology has come a long way since the days when you would carry a cell phone in a bag. Today's cell phones are not only more portable but also allow you to connect to the Internet and check e-mail.

There are two types of cellular networks, analog cellular and digital cellular. 1G (First Generation) cellular networks are based on analog technology similar to broadcast radio stations. They have greater coverage than any other cellular network; however they are limited in quality and security. As a result, 1G services are being phased out. Appearing in the early 90s, 2G (Second Generation) services compensated for the increasing number of users and offered auxiliary services such as data, fax and Short Message Service (SMS). 2G cellular services are based on the first "digital" cellular networks. Digital cellular is often referred to as PCS (personal communications services). When you place a call using a PCS network, your voice is converted into a stream of digital code. That stream is broken up into packets (packages of data) as it is sent to the recipient, where the data stream is reassembled when it reaches its destination. Digital networks provide better reception and security; however, they still remain voice centric. Over the past couple of years the Internet has triggered the need for more data transmission. As a result, 2.5G networks were developed as an extension of the 2G networks. 2.5G enhances voice and adds data transmission speeds of up to 144kbps.

What is Around the Corner?

It will be interesting to see how the press of competing wireless standards shakes out. There will always be improvements on existing technologies and development of completely new technologies. Currently there are new WLAN standards under development that will support data transmission up to 54Mbps. Standards for 3G (Third Generation) cellular networks have also been developed. The 3G networks will allow data transmission speeds of up to 2Mbps. 3G will support bandwidth-hungry applications such as full-motion video, video-conferencing and full Internet access.

There is no question that we have become a mobile society. Our mobility has been brought about through improvement of communications technology and the desire for "on-demand" services. And it is wireless communications that will enable instant connections anytime, and increasingly, anywhere. ■

Contributed by Gabriel Rios, rios@virginia.edu

Check out our new glossary feature TechSpeak on page 3.

PDA USERS UNITE!

They beam, they sync, they recognize your handwriting and they are the size of your hand.

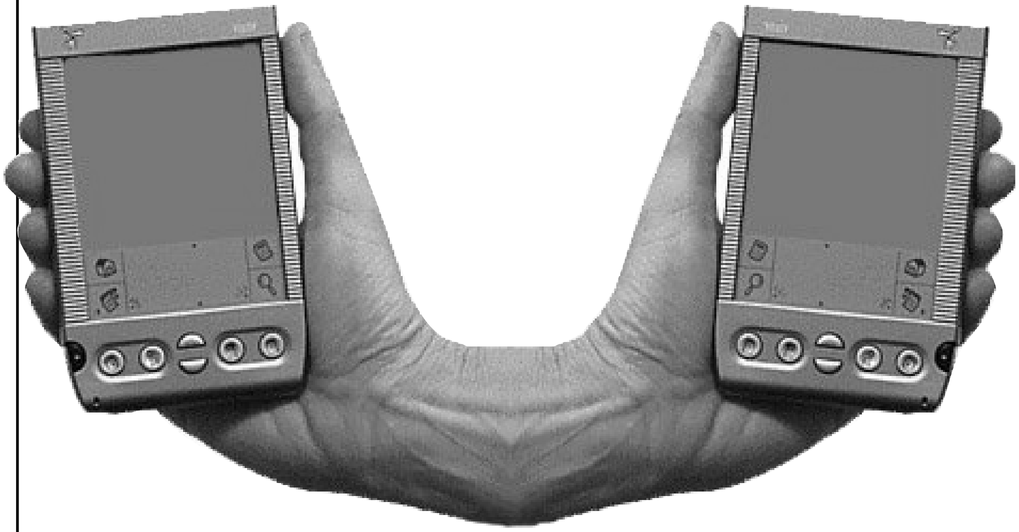
These are features of Personal Digital Assistants (PDAs) — hand-held computer devices that are seen as frivolous gadgets by some and as essential by others. The Health Sciences Library hosted its first PDA Users Group (PUG) meeting on May 4, 2001. The group was created for the purpose of providing a forum for information exchange and collaboration between faculty, staff, and students of the Health System. The PUG covers all types of PDAs, including Palm OS, PocketPC, and WinCE.

The well-attended PUG meeting highlighted two speakers from different areas of the Health System: Audrey E. Snyder, RN, MSN, Instructor in Nursing and Seth Robinson, Medical Student. Audrey has received funding to make Palm Pilots available to nursing students so that they can access databases at the bedside. Seth uses a Palm Pilot to support his clinical decision-making and has created a web page of PDA links used extensively by med students.

The Library plans to investigate the implementation of several services to accommodate PDA users. These services include:

- PDA friendly databases and electronic resources
- Ovid citation downloads
- Printing
- Infrared e-mail and Avantgo channel syncing
- Training sessions
- Push services
- Document delivery
- Wireless access (802.11b)

There are literally thousands of things people can do with their PDAs because of all the programs developed by independents that post them free of charge or sell them cheaply via the Web. Whether you know how to use your PDA, don't have a clue, or are somewhere in between, feel free to join our future meetings! You'll find lots of friendly people sharing stories and cool applications. For more information refer to the Health Sciences Library homepage at **http://www.med.virginia.edu/hs-library**. ■



TECHSPEAK

- 1G, 2G, 3G - Refers to First, Second, and Third Generation of cellular networks.
- Beaming - Term frequently used in the Star Trek series and also used when sending data between PDA devices.
- Host Adapter - A card that is installed inside a desktop, laptop, or PDA designed to add functionality.
- Patch cable - A cable running between your computer and a wall jack to allow you network access.
- Short Message Service (SMS) - messaging service that allows the user to receive text messages limited to 160 characters.
- Unified Medical Language System (UMLS) - National Library of Medicine project which will aid the development of systems that help health professionals and researchers retrieve and integrate electronic biomedical information from a variety of sources and to make it easy for users to link disparate information systems, including computer-based patient records, bibliographic databases, factual databases, and expert systems.
- Wireless access point - hub used to connect wireless devices ■

FINDING IMAGES ON THE WEB

Searching the Internet to locate images and graphics can be frustrating and unrewarding. There are several types of sites on the Internet that can help users in locating graphics and images.

Image Search Engines

AltaVista - http://www.altavista.com/cgi-bin/query?mmdo=l&stype=simage
AltaVista Image Search allows users to find photos, graphics, and buttons/banners. Searchers can also limit results to color, black and white or both. Search results display a thumbnail of the image, dimensions, and file size, and a 'more info' link. This is one of the better image search engines.

Yahoo - http://gallery.yahoo.com/
Yahoo! Picture Gallery allows users to perform simple searches or choose form a selection of categories. Search results display a thumbnail of the picture and its title. The portal design is similar to Yahoo's homepage and makes for easy subject navigation. However, there are two major drawbacks to the search engine. First, there is no easy way to navigate through searches with large numbers of results. This means if you wanted to return to an image on page 3 and you are on page 25, you must go back page by page. Second, all images are supplied by Corbis which is commercial site and there are fees associated with the use of the images.

Lycos - http://multimedia.lycos.com/
Lycos Multimedia allows users to search for pictures, audio, video, or all categories. There is also a feature to enable parental controls. Search results display a thumbnail of the image and image dimensions. The one major drawback is that there is no easy way to navigate through searches with large numbers of results.

Ditto - http://www.ditto.com/
Ditto allows users to search the Web and two commercial collections at the same time. There is some customizability as users can adjust the number of images displayed per page. Search results provide a thumbnail image, URL, Web page title, linked keywords associated with the picture, and dimensions of the image.

IconBAZAAR - http://www.iconbazaar.com
IconBAZAAR is a one-stop site for Web graphics. You can surf through categories to locate the graphic you are looking for or search the site. There are some limitations to use so make sure and read the 'Conditions of Use' section.

Cool Archive - http://www.coolarchive.com
Cool Archive is another site that provides free icons, backgrounds, clip art, and other graphics by category. They also provide tips and information on graphics and HTML.

Artchive - http://www.artchive.com
There is no other site on the Web that has a more comprehensive collection of art. This site also includes a web-based image editor that provides minor editing capability. Be aware that large file sizes may increase the time it takes for images to load. It is worth the wait.

Vesalius - http://www.vesalius.com
Vesalius provides a state-of-the-art, Internet-based resource for surgical education. Vesalius primarily relies on graphical communications to explore and explain concepts in surgical anatomy, pathology, and intervention. The site is unique since it is freely accessible, continuously updated, and utilizes a full range of graphical and interactive formats.

For Purchase

Corbis - http://www.corbis.com
Corbis is a commercial company that owns a large database of images for purchase. Prices are based on the type of license you must use to use the images in the way that you want. Licenses range in price from $7.95 to $49.95.

Please note that many of the sites below have 'Conditions of Use' and 'Copyright Restrictions' associated with images located on their site. Furthermore, some sites may link out to other sites with similar restrictions. In some cases, images are free to download for private and non-profit use and are made available for educational purposes only. In other cases there may be a fee required. It is important that you read and understand any conditions before using any images from the World Wide Web. ■

Contributed by Bart Ragon, bart@virginia.edu

IT’S A BLAST: BIOTECHNOLOGY TRAINING COMES TO UVA

The Health Sciences Library is pleased to sponsor a workshop conducted by Dr. Peter Cooper entitled “A Field Guide to GenBank and NCBI Molecular Biology Resources.” Dr. Cooper, a staff scientist at the National Library of Medicine, has been providing user support services to the National Center for Biotechnology Information (NCBI) since July 1998. This workshop will be a combination of a lecture and hands-on experience with GenBank and related databases, and will cover the effective use of the Entrez text search service and the BLAST similarity search engine.

The workshop will be held on June 19, 2001. A morning session, held in the Jordan Hall Conference Center will feature a lecture by Dr. Cooper. Afternoon sessions at the Health Sciences Library computer lab will include hands-on training in the database systems.

Topics covered in the workshop include:

1. GenBank Database: Description and Scope
2. Database Searching Using Entrez
    - Neighboring and Links
    - Entrez Searching
3. The NCBI Structures Database
    - The Molecular Modeling Database (MMDB)
    - Structural Alignments
    - Viewing Structures and Structural Alignments with Cn3D
4. Similarity Searching Using NCBI BLAST
    - Local Alignment Statistics
    - Scoring Systems
    - Using WWW BLAST 2.1.2
    - PSI-BLAST/PHI-BLAST
    - RPS-BLAST (CDD Search)
    - Setting up Standalone BLAST
5. Genomic Resources at NCBI
    - Complete Genomes in Entrez
    - Human Genome Resources
        - UniGene
        - RefSeq and LocusLink
        - The NCBI Draft Genome
        - The Map Viewer
        - BLAST Searching the Draft Genome ■

“A Field Guide to GenBank and NCBI Molecular Biology Resources” Workshop Details:

Date: June 19, 2001

Time: Lecture:
9:00 am - 12:00 noon
Jordan Hall Conference Center Auditorium

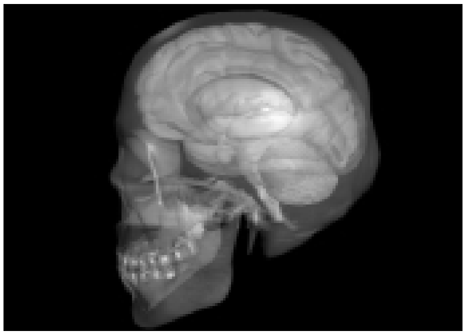
Hands-on (choose one):
1:00 pm - 2:30 pm
3:00 pm - 4:30 pm
5:00 pm - 6:30 pm
Health Sciences Library Carter Classroom

Online registration is available at **http://www.med.virginia.edu/hs-library/info_serv/databases/newregister.html**.

LIFEART

Your electronic presentations, slides, documents, websites, and education materials can now look even more professional with the help of a new image collection at the Health Sciences Library. The LifeART 3D Super Anatomy collection contains over 700 high quality color images in electronic form. Images include external body views at different ages, the skeleton, joints and muscles, organ systems, developing fetus, sliding joints, heart valves and beating heart, balloon angioplasty, electron microscope, human fertilization, vascular stents, and more.

LifeART images are in TIF and JPEG formats. In addition, you can convert the images using the LifeART viewer to other formats such as BMP, EPS, PCX, and others. The LifeART CDs must be used in the Library. To use the collection, ask at the Learning Resources Center Service Desk.



NOTE: When using the LifeART collection this phrase should appear should appear adjacent to the image(s) or in an obvious credits page or screen “LifeART image copyright 1998 Lippincott Williams & Wilkins. All rights reserved.” LifeART allows you to incorporate up to 10 LifeART Images in any single work. ■

NLM GATEWAY: THE NATIONAL LIBRARY OF MEDICINE'S NEWEST SEARCH INTERFACE

Changes have been underway at the National Library of Medicine (NLM) for some time now, including improvements to PubMed and the development of a new search interface called the NLM Gateway. These changes will affect access to many of NLM's specialty databases like HealthSTAR and AIDSLINE. Journal citations from these databases will be searchable through PubMed, while meeting abstracts, books, and other information can be accessed through NLM's newest interface, the NLM Gateway. The result is more convenient, one-stop searching for most of your search topics.

Searching the NLM Gateway

The NLM Gateway is both a friendly and powerful search system. Search concepts may be entered as single terms, phrases (quotes must be used) or connected with Boolean operators (AND, OR, NOT). A Find Terms function allows you to utilize MeSH Headings or the UMLS Metathesaurus in your search. A Limit capability is also available to limit searches to a particular category (such as consumer health information) or English only. Search results are delivered in one set grouped by categories, with the ability to jump from category to category.

For advanced searchers, it is possible to restrict your search terms to specific fields or parts of the record such as title, author name, etc.

Journal Citation Searching

Journal citations from databases such as HealthSTAR are currently included in PubMed. Citations from AIDSLINE, BIOETHICSLINE, HISTLINE, POPLINE and SPACELINE will be added to PubMed as well. The many PubMed search options, including powerful search capabilities, access to search sets, ability to limit search, and access to online full text for subscribed journals will be available for these specialty data sources as they are for MEDLINE.

Meeting Abstracts and More

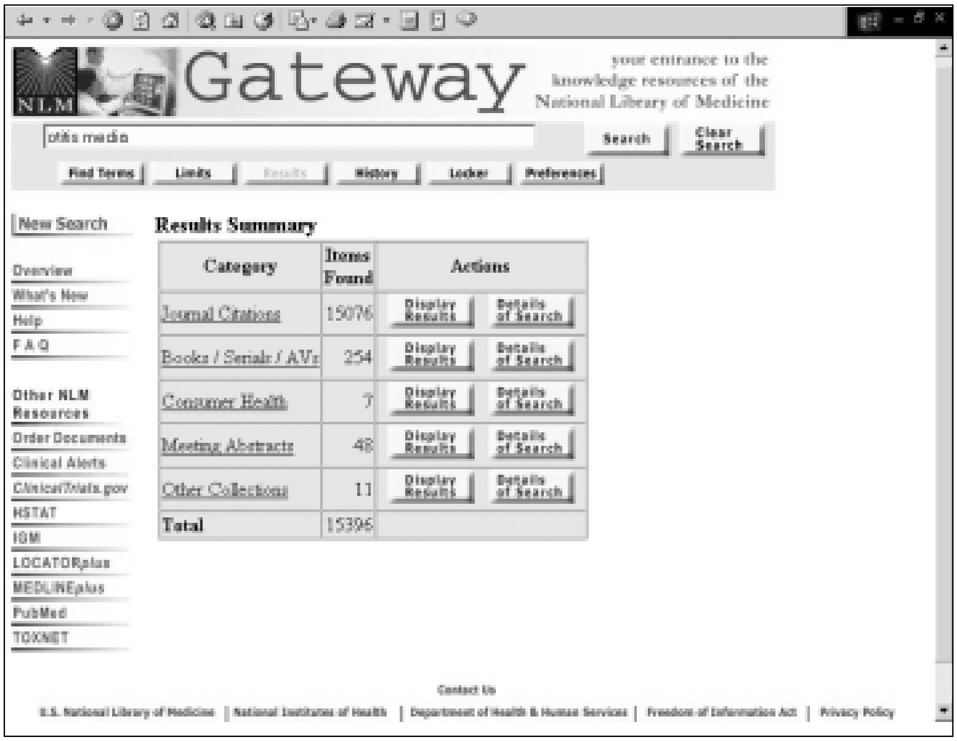
NLM specialty databases such as HealthSTAR also include citations to meeting abstracts and books; however, the Gateway's search capabilities are not limited to meeting abstracts. In fact, Gateway's "one-stop searching" design allows you to enter one query that is simultaneously searched across multiple NLM retrieval systems, including databases for journal citations (*e.g.* MEDLINE), book citations (LOCATOR*plus*), meeting abstracts (AIDS Meeting Abstracts), and consumer health resources (MEDLINE*plus*).

What's Next

The Gateway will eventually replace the existing Internet Grateful Med search interface. By Fall 2001, three of NLM's collections (AIDS Meeting Abstracts, OLDMEDLINE, and HSRProj (Health Services Research Projects in Progress) will be found only in the Gateway. Other collections will be available through existing NLM systems (PubMed, LOCATORplus, MEDLINEplus) giving searchers several choices in utilizing the search interface that best fits their needs.

For more information about the changes at NLM, or to search the NLM Gateway, go to **http://gateway.nlm.nih.gov**. ■

Contributed by Andrea Horne, ash6b@virginia.edu



otitis media

Results Summary

Category	Items Found	Actions	
Journal Citations	15076	Display Results	Details of Search
Books / Serials / AVs	254	Display Results	Details of Search
Consumer Health	7	Display Results	Details of Search
Meeting Abstracts	48	Display Results	Details of Search
Other Collections	11	Display Results	Details of Search
Total	15396		

ACCESS TO THE ELSEVIER SCIENCE JOURNAL COLLECTION: SCIENCEDIRECT

The University of Virginia has licensed Grounds-wide access to ScienceDirect, a web-based online service offering access to the Elsevier Science journal collection (over 1,200 titles), along with journals from a host of prestigious societies and STM publishers. The full text collection of over 1 million articles from 1995 to present covers a wide variety of subject areas and disciplines, including: biochemistry, biological sciences, chemistry, clinical medicine, engineering & technology, environmental science, materials science, mathematics & computer science, microbiology & immunology, neurosciences, pharmacology & toxicology, and physics.

University of Virginia users will have full online access to 796 titles, which represent the combined print subscriptions of a group of seven Virginia universities who are cooperatively purchasing the ScienceDirect license, including Virginia Tech, and Virginia Commonwealth University. Tables of contents and abstracts are available for all ScienceDirect journals, and users will have the ability to access a limited number of individual articles from any non-subscribed journal.

ScienceDirect also offers a number of enhanced features that will allow individuals to:

- Create personalized journal lists.
- Set up an e-mail tables-of-contents service to notify users when new online issues are available.
- Create automated scheduled subject searches with e-mail notification of results.

All ScienceDirect journals will be linked from the MEDLINE and Web of Science databases, as well as VIRGO, the University's library catalog. For direct access to ScienceDirect, point your browser to: **http//:www.sciencedirect.com**. ■

WHATEVER HAPPENED TO *NATURE ONLINE*?

Online access to the journal ***Nature*** was discontinued this past March when the University refused to sign a license that imposed a 90-day embargo on the Opinion, News, Book Reviews, and News and Views sections of the online edition of the journal. The University libraries felt the delay in publication of this widely read and time-sensitive material defeated the very purpose of an online journal, and was in conflict with the libraries' mission, which is to make material available as widely as possible on equal terms to all members of the University. UVA was not alone in objecting to the ***Nature*** license; over 200 universities and colleges worldwide refused to license a version of ***Nature*** that did not include immediate online access to the full content of the journal.

After months of boycott, and numerous letters and e-mails protesting the institutional license, the publisher of ***Nature*** announced that it was dropping the 90-day embargo from the license. In an April 23, 2001 press release, ***Nature's*** publisher announced "All journal content will now be available to institutional subscribers, immediately on publication. There will also be a new streamlined institutional pricing policy for all the ***Nature***..." The revised institutional license and pricing will be available after May 1, 2001. The University libraries will work on reestablishing online access to ***Nature*** as soon as the new license can be reviewed and signed. ■

AT LONG LAST: ACCESS TO E-JOURNALS OF THE AMERICAN SOCIETY FOR MICROBIOLOGY

ANTIMICROBIAL AGENTS AND CHEMOTHERAPY
Applied and Environmental Microbiology
Infection and Immunity
mmbr

The University of Virginia has licensed online access to eight journals published by the American Society for Microbiology (ASM): ***Antimicrobial Agents and Chemotherapy, Applied and Environmental Microbiology, Infection & Immunity, Journal of Bacteriology, Journal of Clinical Microbiology, Journal of Virology, Microbiology and Molecular Biology Reviews, and Molecular*** and ***Cellular Biology***. ■

AMERICAN CHEMICAL SOCIETY JOURNALS NOW AVAILABLE ONLINE

The Health Sciences Library now has electronic access to 30 journals of the American Chemical Society, with full-text coverage back to 1996 for many titles of interest to the Health System community, including: ***Journal of Agricultural & Food Chemistry, Journal of Medicinal Chemistry, Journal of Natural Products,*** and ***Modern Drug Discovery***. ■

Double Click

The **American Medical Informatics Association** (AMIA) has issued a call for participation for its annual conference to be held November 3-7, 2001. The theme for the conference is “A Medical Informatics Odyssey: Visions of the Future and Lessons from the Past” and will be held in Washington DC. The conference will engage both an individual’s professional odyssey, as well as present a journey through a quarter century of medical informatics. For registration information see AMIA’s website at **http://www.amia.org/meetings/annual/f1.html**.

LIBRARY HOURS

Monday - Thursday	7:30am	- 11:00pm
Friday	7:30am	- 7:00pm
Saturday	9:00am	- 7:00pm
Sunday	11:00am	- 11:00pm
Reference Desk		
Monday - Friday	8:00am	- 6:00pm
Summer	8:00am	- 5:00pm

The **American Society for Information Science and Technology** (ASIS) has issued a call for papers and presentations for its annual conference to be held in November. The theme for this year’s conference is “Information in a Networked World: Harnessing the Flow.” ASIS is soliciting papers and presentations from a wide variety of topical areas. For a complete list of topics and registration information, please visit the ASIS website at **http://www.asis.org/**.

The Health Sciences Library is pleased to welcome **Anthony Head**, ah6t@virginia.edu, as the new Information Technology Services Manager. Anthony received his B.S. in Computer Science from Jacksonville State University. Anthony’s most recent position was with Gandalf Development in Birmingham Alabama. Gandalf Development is an Internet-based company that develops content management systems. Anthony has extensive backgrounds in both systems administration and SQL server databases. At the library, Anthony will be responsible for managing the Library’s computer systems and ensuring their efficiency and reliability.

ASIS is also co-sponsoring a Second Conference on the “History and Heritage of Scientific and Technical Information Systems,” November 15-17, 2002, and Preliminary Workshops are scheduled for the Conference June 8-9, 2001 and September 15-16, 2001. Information on this conference can also be found on the Chemical Heritage Foundation website **http://www.chemheritage.org/**.

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UNIVERSITY OF VIRGINIA HEALTH SYSTEM
CLAUDE MOORE HEALTH SCIENCES LIBRARY
1300 JEFFERSON PARK AVENUE
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CHARLOTTESVILLE, VIRGINIA 22908-0722